REMEDIAL PLANNING ACTIVITIES AT SELECTED UNCONTROLLED HAZARDOUS SUBSTANCES DISPOSAL SITES IN A ZONE FOR EPA REGIONS VI, VII, & VIII

U. S. EPA CONTRACT NO. 68-W9-0021

Detroit Tool
MOD981120587
1.5

9.30.94

PRELIMINARY ASSESSMENT REPORT FOR SITE ASSESSMENT ACTIVITY AT THE DETROIT TOOL SITE LEBANON, MISSOURI

Work Assignment No.: 013-79ZZ
Document Control No.: 7760-013-J4-RT-DDZM

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Prepared for:
U. S. Environmental Protection Agency

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EXECUTIVE SUMMARY

Detroit Tool was established in Lebanon, Missouri, in the late 1950s. It is a metal fabrication facility which produces items such as metal filing cabinets. During the course of an environmental investigation, hazardous substances were found onsite both in the soil and perched groundwater. Notification was sent to USEPA Region VII and the MDNR.

Detroit Tool began remedial actions late in 1989 and continued through 1993 under State oversite. Remedial actions involved soil removal and groundwater monitoring. Groundwater monitoring is an ongoing effort with six quarterly sampling events having been completed as of May 1994. The sampling has shown contamination of the perched water zone. This sampling is currently continuing with no more soil remediation planned.

1.0 INTRODUCTION

Under authority of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), and the Superfund Amendments and Reauthorization Act of 1986 (SARA), CDM Federal Programs Corporation (CDM Federal) was tasked by the United States Environmental Protection Agency (EPA) Region VII to conduct a Preliminary Assessment (PA) of the Detroit Tool site. The site (CERCLIS ID No. MOD981120587) is located in Lebanon, Missouri, in Laclede County.

1.1 OBJECTIVE

The objective of this investigation was to collect information concerning the possible presence of hazardous substances at the Detroit Tool site sufficient to assess the threat posed to human health and the environment and to determine the need for additional CERCLA/SARA or other appropriate action. The scope of the investigation included:

- Development of detailed background information, review of all existing EPA, and State site files.
- Calculation of a Preliminary Assessment HRS Score.
- Evaluation of target populations within a 4-mile radius from the site with respect to the groundwater, surface water, air, and soil exposure pathways.
- An onsite and offsite reconnaissance of the site with an emphasis on obtaining comprehensive information with respect to receptors of a potential release from the site.
- Preparation of a Preliminary Assessment Report.

2.0 SITE DESCRIPTION AND HISTORY

Detroit Tool is a metal fabrication and painting facility that has been in operation since 1956. The operation produced wastes associated with a wet spray painting operation. The wet spray system involved mixing paint with solvents and applying the solution to the product. The wastes involved petroleum hydrocarbons, solvents, paint sludge, metals, and inert solids. Historically the wastes were disposed of onsite, most often by uncontained land burial. In 1989, USEPA Region VII was notified by Detroit Tool that during the course of an environmental audit, hazardous substances had been found in various places around the site, in both soil and shallow groundwater. Under state oversight, Detroit Tool initiated remediation efforts late in 1989. Remediation involved removal of contaminated soil, installation of monitoring wells, and adoption of a groundwater monitoring program. Contaminated soil was excavated and hauled to permitted landfills in Springfield, Missouri, and in Rolla, Missouri.

2.1 SITE LOCATION

The Detroit Tool site is located in the southern portion of Lebanon, Missouri, in Laclede County. The site is legally located in the southeast corner of Section 10, Township 34 North, Range 06 West. The Detroit Tool operation utilizes two buildings in Lebanon. The manufacturing facility is located adjacent to Bethel Road at 100 Carr Road. The main building that houses the offices, some metal work, and engineering department is located at 441 West Elm St. in Lebanon. The focus of this study however is the manufacturing facility on Carr Road. The surrounding area is sparsely populated with some residential, light commercial, and industrial neighbors. The geographical coordinates for Detroit Tool are 37° 40′ 15″ North Latitude, 92° 42′ 16″ West Longitude. Figure 2-1 shows the location of the Detroit Tool Facility.

2.2 SITE DESCRIPTION

The Detroit Tool site consists of several different areas with distinct properties that will be discussed as different units. There were eight units delineated in the original Woodward Clyde Consultants (WCC) Environmental Audit: the Silo Area, the Lagoon Area, the Drum Storage

REMEDIAL SITE ASSESSMENT DECISION - EPA REGION VII

Site Name: Detroit Tool Site EPA ID#: MOD981120587

Alias Site Names: None

City: Lebanon County or Parish: Laclede State: MO

Refer to Report Dated: 9/30/94 Report type: Preliminary Assessment

Report developed by: CAM - EPC

DECISION:

|✓| 1. Further Remedial Site Assessment under CERCLA (Superfund) is not required because:

|✓| 1a. Site does not qualify for further remedial site assessment under CERCLA (Site Evaluation Accomplished - SEA)

| | 1b. Site may qualify for further action, but is deferred to: | | RCRA | | NRC

| | 2. Further Assessment Needed Under CERCLA: 2a. (optional) Priority: | | Higher | | Lower

2b. Activity Type: | | PA | | SI | | ESI | | HRS evaluation | | Other: _____

DISCUSSION/RATIONALE:

Clean-up of hazardous wastes discovered during an environmental audit are being conducted by Detroit Tool under MDNR oversight. Approximately 13,000 cubic yards of contaminated soil has been removed from the site and groundwater monitoring implemented. With clean-up proceeding under MDNR oversight, no other assessment under CERCLA appears to be necessary.

Report Reviewed and Approved by: A. Olberding Signature: A. Olberding Date: 12/1/94

Site Decision Made by: A Olberding Signature: A. Olberding Date: 12/1/94

EPA Form # 9100-3

Detroit Tool
MOD981120587
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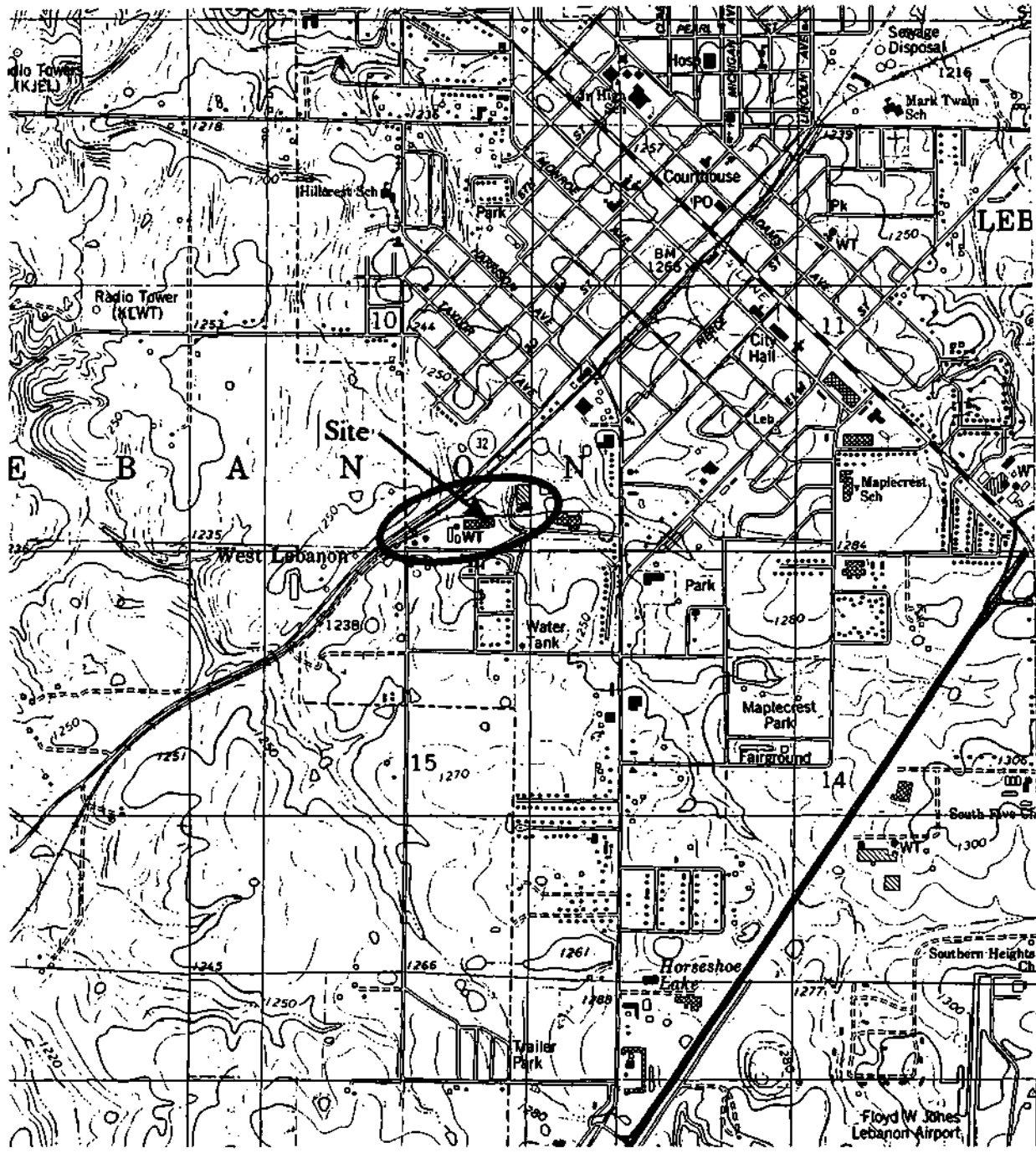
12.1.94



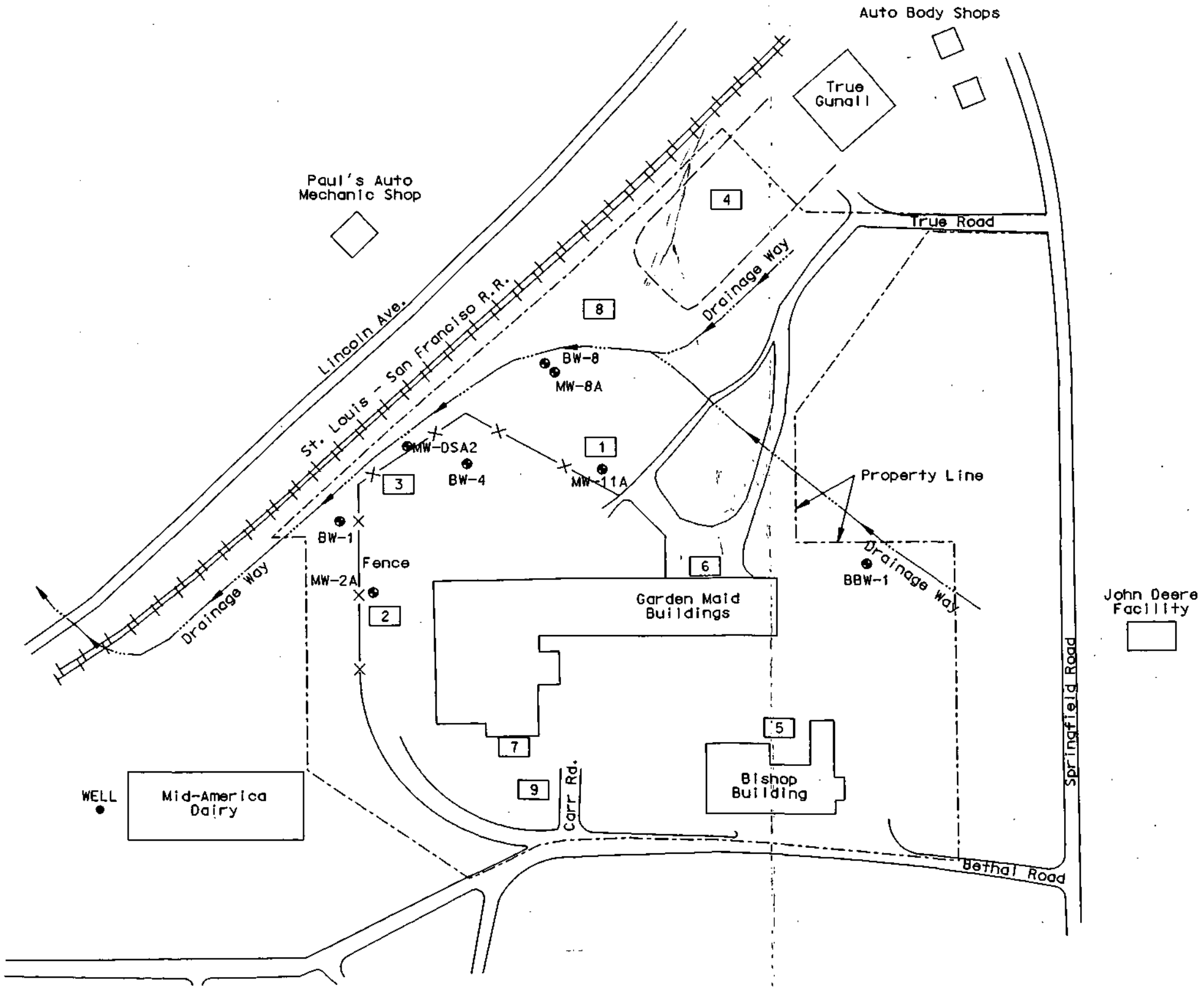
Source: USGS 7.5' Quadrangle, 1978 Lebanon, Mo.

Project No.: 7760-013	Detroit Tool Facility Lebanon, Missouri	Site Location Map	Figure No.: 2-1
	CDM FEDERAL PROGRAMS CORPORATION a subsidiary of Camp Dresser & McKee Inc.		2/94

Area, the Bishop Building USTs, the Railroad Pond, the Haystack Area, the Heat Treat Shop USTS, and the Backfill Area. In addition to the original eight areas, several more areas were located in subsequent investigations. In later investigations eight more areas were investigated. These include the Gravel Parking Lot Area, Pallet and Box Storage Area, Paved Parking Lot Area, Transformer Rack Area, the Site Adjacent to the Transformer Rack Area, the Die Storage Area, the Drainage Channel Along the North Side of the Abandoned Railroad Spur, West of the Hay Stack Area (The Oil Trough), and the Concrete Parking Lot. See Figure 2-2 for a Site Map.

The Silo Area consisted of a trench burial for disposal of a wide variety of materials, including paint solids, inert solids, and solid waste. There were six silos discovered during excavation of this area. Wastes were found in silos S-2, S-3, S-4, S-5, and S-6. Wastes found in the Silo Area are associated with paint wastes, wastes found were the organic compounds; acetone, BTEX, trans-1,2 dichlorethene (1,2-DCE), trichloroethene (TCE), 4-methyl-2-pentanone (hexone), and total petroleum hydrocarbons (TPH), in addition to the organics, heavy metals such as cadmium, chromium, lead, and selenium were also discovered (Woodward-Clyde 1989). Approximately 5,500 c.y. of contaminated soil from this area was excavated and hauled to a RCRA permitted landfill (Missouri Department of Natural Resources (MDNR) 1990).

The Lagoon Area was used to dispose of liquid wastes from the paint overspray system and was located just west of the Garden Maid Building. During excavation activities the contractors found paint sludge as well as some solid and drummed wastes. The lagoon was in use for about 29 years before being backfilled, covered with gravel, and used as a parking lot. This area was used for disposal of fluid from the degreaser. Wastes found in the Lagoon Area were primarily organic compounds; ethylbenzene, toluene, total xylene, TPH, and methylene chloride (Woodward Clyde 1989). Approximately 4,730 c.y. of contaminated soil, rubble, and drummed wastes were removed from the Lagoon Area (Shannon and Wilson 1991).



Legend:

- Boring Location with Monitoring Well
- 1 Silo Area
- 2 Lagoon Area
- 3 Drum Storage Area
- 4 Backfill Area
- 5 Bishop Building USTs
- 6 Die Storage Area
- 7 Oil Trough
- 8 Railroad Pond
- 9 Haystack Area

N

240 0 240 480

SCALE FEET

Site Map

Detroit Tool
Lebanon, Missouri

Project No.: 7760-013

Figure No.: 2-2

CDM FEDERAL PROGRAMS CORPORATION
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6/94

MCS FILE: DETTOL02

The Drum Storage Area (DSA) was used to stage nearly empty drums prior to shipment of the drums offsite. It is a small gravel area at the north end of the west parking lot. Any residual material in the drums was allowed to drain onto the ground. Contamination of the DSA was primarily by TPH. Levels of TPH in two samples collected from the DSA were 29,000 ppm and 41,000 ppm (Woodward-Clyde 1989). During remediation efforts 855 c.y. of contaminated soil were removed from the DSA (Shannon and Wilson 1991).

The Bishop Building USTs site is located near the corner of Carr Rd. and Bethel Rd., the tanks were located at the northwest corner of the Bishop Building. The USTs were apparently installed around 1947, prior to ownership of the site by Detroit Tool. The tanks stored No. 6 heating oil which is a heavy fuel oil. Wastes found in this area at a depth of up to 41.5 feet were acetone, ethylbenzene, toluene, total xylene, and TPH (Woodward-Clyde 1989). During remedial efforts 800 tons of contaminated soil were removed (MDNR 1989).

The Railroad Pond is a low area between the Silo Area and the Backfill Area. At the time of the initial report in 1989, the Railroad Pond was a surface water impoundment, since then it has been drained and is currently a vegetated field. Historically this area was not used for waste disposal and sampling showed that contamination was limited to the surface. Chlordane was found in high concentrations in three surface soil samples, up to 620 ppb. Detroit Tool reportedly did not use Chlordane in any of its operations, therefore it is believed that the Chlordane may have washed down from further up stream (Woodward-Clyde 1989). Remediation was not under taken in the Railroad Pond Area.

The Haystack Area was used for disposal of metal shavings from the late 1950s to the 1960s (Woodward-Clyde 1989). This is a small area, approximately 10 to 15 feet in diameter and about 10 feet deep. Contamination was not found in this area in the original WCC investigation, however subsequent investigation found elevated levels of TPH. A split sample was sent to American Technical and Analytical Services, Inc. (ATAS) and to the MDNR for analysis; results showed 1,910 ppm and 224 ppm of TPH. MDNR approved a work plan which called for no remedial action at the Hay Stack Area (Shifrin and Associates 1992).

The Heat Treat Shop USTs are on property not owned by Detroit Tool. This area was leased by Detroit Tool for several years, this area involved two 1,000-gallon USTs. As of July 1989, one tank was not in use and the other contained diesel fuel. Several soil borings were completed in the area and showed low TPH contamination in the soil (Woodward-Clyde 1989). To date, no further actions have been undertaken at the Heat Treat Shop USTS.

During the investigation of the Northern Backfill Area WCC found only rubble and construction debris (Woodward-Clyde 1989), a later investigation by Shannon and Wilson showed elevated levels of TPH and lead. During a test pit excavation a steel drum was discovered, the material inside contained elevated levels of vinyl chloride. Wastes were excavated from this area with an estimated 600 c.y. of material removed (Shifrin and Associates 1992).

The Gravel Parking Lot Area is located north of the Garden Maid Building and south of the Silo Area. This area was reported by plant workers as being suspect in improper waste disposal. Samples from a test pit showed elevated levels of toluene, ethylbenzene, xylene, total cadmium, and total lead. These chemicals were in a paint waste material that appeared to be localized in its distribution (Shifrin and Associates 1992).

The Pallet and Box Storage Area is located east of the Gravel Parking Lot Area. Sampling showed no contamination in this area (Shifrin and Associates 1992).

The Transformer Rack Area and the Site Adjacent to the Transformer Rack Area were identified due to the appearance of paint wastes on the surface and the possible presence of PCBs. Analytical results and visual observation showed that the paint wastes were localized and limited to the surface and there was no detection of PCB contamination (Shifrin and Associates 1992).

The Die Storage Area was used to store tools used for metal stamping. Solvents and oils were allowed to run off the dies onto the ground (CDM Federal 1994). Sampling showed elevated levels of TPH in the subsurface soils. Remediation was undertaken in this area with approximately 50 cubic yards of soil being removed (Shifrin and Associates 1992).

The oil trough collected oil that was discharged from the south end of the Garden Maid Building (CDM Federal 1994). Soils in this area showed high levels of TPH (47,587 ppm). The area was remediated with an estimated 300 cubic yards of soil being removed (Shifrin and Associates 1992).

2.3 SITE HISTORY

Extensive work has been done at the Detroit Tool site, nearly 13,000 c.y. of soil has been excavated and several monitoring wells have been installed. Currently there are seven monitoring wells onsite that are sampled quarterly (Shannon and Wilson 1991) (MDNR(a) 1990) (MDNR(b) 1990) (Shifrin and Associates 1993). Environmental problems were discovered in the summer of 1989, when in the course of an environmental audit by WCC contamination was found in several areas around the site. Notification was sent to USEPA Region VII and MDNR. This initial report delineated several areas onsite that contained varying amounts of different chemicals.

Two months after the WCC report remediation efforts began at the Bishop Building UST site with MDNR granting permission for Detroit Tool to dispose of 800 tons of contaminated soil in a municipal landfill (MDNR(b) 1990). Westinghouse Environmental Services Inc. (WEI) completed excavation removal and closure of the two 10,000 gallon USTs in December 1989 (MDNR 1989).

On February 27, 1990, Detroit Tool was notified that MDNR was proposing that the Silo Area be placed on Missouri Registry of Abandoned or Uncontrolled Hazardous Waste Sites ("The Registry") (MDNR(c) 1990).

On March 19, 1990, Peper, Martin, Jensen, Maichel, and Hetlage, Attorneys representing Detroit Tool appeal the placement of the site on the Registry (P, M, J, M, & H 1990).

In September 1990, an agreement was made that a Remedial Action Plan will be implemented so that the Silo Area will not be placed on the Registry (MDNR(d) 1990).

On September 28, 1990, Shannon and Wilson, Inc. began field work in the Silo Area. This work began as excavation of test pits for further characterization (Shannon and Wilson(a) 1991).

On October 2, 1990, work focused on the Lagoon Area. Several test pits were excavated, the pits uncovered a layer of crushed limestone at the surface, below this was a layer of 6-8 feet of coarse gravel and sludge, and then a stiff reddish-brown clay. Excavation and sampling of this area continued throughout the remainder of the year (Shannon and Wilson(a) 1991).

Test pit excavation in the Drum Storage Area (DSA) began on October 23, 1990. Three test pits were excavated, at a depth of about four feet a layer of trash and metal debris was discovered in one of the test pits. The trash included lumber, paper, bottles, cans, and cloth (Shannon and Wilson(a) 1991). This trash seam emitted high concentrations of organic vapors. Another test pit discovered at least two feet of metal wastes. The remaining test pit found discolored soil. On October 26, 1990, a fourth test pit was excavated, this test pit found up to 8 feet of trash and metal wastes (Shannon and Wilson 1991).

On November 21, 1990, Detroit Tool was granted a special waste permit for the Silo Area wastes. Excavation and disposal began on December 4 (Shannon and Wilson(a) 1991).

During the summer of 1991, Shannon and Wilson performed a supplemental investigation to further characterize any unaddressed areas onsite. The investigation utilized electromagnetic geophysics, magnetic geophysics, test pits, and interviews with plant workers to find any possible disposal sites. This investigation resulted in 12 areas of possible contamination, some of these areas were extensions of areas delineated in the original WCC investigation. Out of the 12 areas three were judged to need further remediation. These three areas were the Northern Backfill Area, the Die Storage Area, and the Drainage Channel Along the North Side of the Abandoned Railroad Spur and West of the Hay Stack Area (the Oil Trough).

September 1991, waste roofing tar was discovered in the Backfill Area. The volume was about four 65-gallon drums, this included contaminated soil, tar, and polyethylene sheeting. After TCLP analysis the tar was disposed of in the Phelps County Landfill in Rolla, Missouri (Shannon and Wilson 1992).

November 1991, cleanup objectives for the Lagoon Area had been met (Shannon and Wilson 1992).

December 19, 1991, the backfilling of the Lagoon Area and the Silo Area was completed (Shannon and Wilson (a)(b) 1992).

In August of 1992, the Detroit Tool Manufacturing Facility was purchased by the Harbour Group Industries, Inc. of St. Louis, Missouri (Greensfelder, Hemker & Gale P.C. 1992).

December 1992, Shifrin and Associates installed four monitoring wells. Wells MW-2A, MW-DSA2, MW-8A, and MW-11A (Shifrin and Associates (a) 1993).

The second quarter 1993 groundwater sampling commenced on April 12 and 13, 1993. Seven monitoring wells were sampled. TCE was found to be in excess of cleanup guidelines with a concentration of 10 ppb in Monitoring Well BW-4. Lead and chromium were high in the unfiltered sample and low in the filtered sample. The heavy metal contamination was attributed to turbidity in the water, not to dissolved metals in the water (Shifrin and Associates (b) 1993).

July 1993, was the third quarter 1993 groundwater sampling. Monitoring Well BW-4 did not have sufficient water in it to sample. The previous quarter this well exceeded the guidelines for TCE (Shifrin and Associates (c) 1993).

October 1993, fourth quarter 1993 groundwater sampling. Monitoring Well BW-4 showed 27.8 ppb TCE and 2.5 ppb vinyl chloride. These values both exceed the MCL of 5 ppb and 2 ppb respectively.

November 5, 1993, the final site disposition form for Detroit Tool submitted to EPA Region VII by MDNR. This form stated that no further CERCLA action is necessary (MDNR 1993).

3.0 WASTE AND SOURCE CHARACTERISTICS

During the WCC investigation in 1989, a wide variety of wastes were discovered primarily VOCs and Metals. VOCs included alcohols and chlorinated hydrocarbons. Table 3-1 lists the primary contaminants and some of their properties.

Many of the chemicals listed were found in small quantities or found only in isolated instances. Chemicals that were found consistently across the site include total petroleum hydrocarbons, lead, chromium, cadmium, trichloroethene, 1,2-dichloroethene, and BTEX compounds. Vinyl chloride and carbon tetrachloride were also found but not as consistently as the compounds in the previous list.

The BTEX compounds detected during the site investigative activities include benzene, toluene, ethylbenzene, and xylene. Benzene is a confirmed carcinogen with an OSHA PEL of 10 ppm for an eight hour time weighted average. It is a poison by inhalation and an experimental poison by other routes. It is a severe eye and skin irritant. Benzene is highly flammable and reactive (Lewis 1993). Toluene is a poison through the intraperitoneal route and is moderately toxic by other routes. It is a skin and severe eye irritant. The OSHA PEL for toluene is 200 ppm for an eight hour period (Lewis 1993). Ethylbenzene is moderately toxic by ingestion and intraperitoneal routes. It is moderately toxic by other routes. Ethylbenzene is an eye and skin irritant and highly flammable and explosive. The OSHA PEL for ethylbenzene is 100 ppm for an eight hour period. Xylene is moderately toxic by intraperitoneal and subcutaneous routes and mildly toxic by ingestion and inhalation. It is an experimental severe eye and skin irritant. The OSHA PEL for xylene is 100 ppm for an eight hour period (Lewis 1993).

Cadmium was found in large concentrations and was found widely across the site. Cadmium is a heavy metal that is a confirmed human carcinogen. It is also a poison by inhalation and other routes. Cadmium dust in the air can be flammable and explosive. The OSHA PEL for cadmium is 0.1 ppm for an eight hour period (Lewis 1993).

TABLE 3-1
Chemical Compounds Found
on the Detroit Tool Site
Lebanon, Missouri

Chemical Name	*Group*	*Chemical Formula*	*Human Hazard*				*MCL in Groundwater*	*OSHA PEL*
			Ingestion	*Inhalation*	*Dermal*	*Intraperitoneal*		
Acetone	VOC	C_3H_6O	moderate	moderate	irritant	N/A	--	750 ppm
BTEX	VOC	CH Ring	carcinogen	carcinogen	irritant	carcinogen	5 ppb	10-200 ppm
2-Butanone (MEK)	VOC	C_4H_8O	moderately toxic	systemic effects	moderately toxic	moderately toxic	--	200 ppm
Carbon Tetrachloride	VOC	CCl_4	poison	mildly toxic	irritant	possible poison	5 ppb	10 ppm
Chlordane	Pesticide	$C_{10}H_6Cl_8$	poison	poison	moderately toxic	poison	2 ppb	.5 ppm
Cadmium	Metal	Cd	poison	poison	poison	poison	5 ppb	.1 ppm
Chromium	Metal	Cr	poison	carcinogen	corrosive	N/A	100 ppb	1 ppm
1,2-Dichloroethene (1,2 DCE)	VOC	$C_2H_2Cl_2$	moderately toxic	poison	moderately toxic	moderately toxic	70 ppb	200 ppm
Ethylbenzene	VOC	C_8H_{10}	moderately toxic	mildly toxic	mildly toxic	moderately toxic	700 ppb	100 ppm
Lead	Metal	Pb	poison	systemic effects	N/A	moderately toxic	15 ppb	.05 ppm
Methylene Chloride	VOC	CH_2Cl_2	moderately toxic	mildly toxic	severe irritant	moderately toxic	--	500 ppm
4-methyl-2-pentanone	VOC	C_6H_20	moderately toxic	mildly toxic	irritant	poison	--	100 ppm
Selenium	Metal	Se	moderately toxic	poison	suspected carcinogen	poison	50 ppb	.2 ppm
Tetrachloroethene (PCE)	VOC	C_2Cl_4	carcinogen	moderately toxic	severe irritant	carcinogen	5 ppb	100 ppm
Trichloroethene (TCE)	VOC	C_2HCl_3	moderately toxic	moderately toxic	experimental carcinogen	carcinogen	5 ppb	100 ppm
Total Petroleum Hydrocarbons (TPH)	VOC SVOC	Hydrocarbon	mildly toxic	mild irritant to moderately toxic	carcinogen	mildly toxic	10 ppm	variable
Vinyl Chloride	VOC	C_2H_3Cl	moderately toxic	reproductive effects	severe irritant	carcinogen	2 ppb	--
Zinc	Metal	Zn	systematic effects	nontoxic	irritant	N/A	--	N/A

VOC = Volatile Organic Compound
SVOC = Semivolatile Organic Compound

Carbon tetrachloride is a dense chlorinated hydrocarbon and is a confirmed carcinogen, it is a poison by ingestion and other routes, it is mildly toxic by inhalation and is an eye and skin irritant. The OSHA PEL for carbon tetrachloride is 10 ppm for an eight hour period. This compound is also reactive, flammable, and explosive. It has been banned from household use by the FDA (Lewis 1993).

Chromium was also found widespread across the site. This chemical is a heavy metal and is a confirmed human carcinogen, it is a poison by ingestion, and chromium powder will explode spontaneously in air. The OSHA PEL for chromium is 1 ppm for an eight hour period (Lewis 1993).

1,2 Dichloroethene (1,2-DCE) is a chlorinated hydrocarbon, this volatile compound is a poison by inhalation and moderately toxic by other routes. This is a dense compound and the OSHA PEL for 1,2 DCE is 200 ppm over an eight hour day (Lewis 1993).

Lead is a heavy metal that is a suspected carcinogen. It is a poison by ingestion and moderately toxic by the intraperitoneal route. Lead can cause many pronounced affects, including affecting the central nervous system, blood system, and kidneys, among many other problems, low concentrations of lead can lower the IQ scores of children. The OSHA PEL for lead is 0.15 ppm for an eight hour period. Lead can be flammable and explosive in the form of dust in the air (Lewis 1993).

The compounds that were the most widespread throughout the site were total petroleum hydrocarbons or TPH. TPH was selected by the MDNR as the primary cleanup standard for the Detroit Tool site. The cleanup standard for TPH was chosen initially to be 100 ppm. During the remedial activities this was changed to 200 ppm. File information is unclear as to the date which this changed. TPH was found as derivates from paint wastes as well as lubricating oil from the machinery. Petroleum is less dense than water and flammable, and is a questionable carcinogen and experimental carcinogen through dermal contact (Lewis 1993).

Trichloroethene or TCE is a chlorinated hydrocarbon, it is dense and has a characteristically sweet odor and taste. TCE was a widely used degreasing agent, it was also used at Detroit Tool as a solvent in the painting process. TCE is a suspected carcinogen with an OSHA PEL of 100 ppm for an eight hour day. It is an experimental poison through intravenous and subcutaneous routes and is moderately toxic through ingestion and intraperitoneal routes. It is mildly toxic by inhalation. TCE has a low flammability and is reactive with certain compounds (Lewis 1993).

Vinyl Chloride is also a chlorinated hydrocarbon, it is lighter than water and is a confirmed human carcinogen causing tumors in the blood and liver. It is moderately toxic by ingestion. The OSHA PEL for vinyl chloride is listed as a Cancer Suspect Agent. It is a highly flammable substance (Lewis 1993).

4.0 ENVIRONMENTAL SETTING

4.1 SOILS

The portion of Laclede County that is occupied by the Detroit Tool facility is underlain by the Wilderness Series soils. This series is a gravely silt loam that is very deep and moderately well drained. It forms in gently sloping areas, has low average water content, moderate permeability, and promotes medium runoff of surface water (USDA 1994).

4.2 CLIMATE

Typical of southern Missouri, Lebanon is hot in the summer and moderately cold in the winter. The average temperature in the summer is 76°F with an average high temperature of 87°F. Winter months experience an average temperature of 35°F with an average daily minimum of 24°F. This region receives large amounts of rainfall with the majority coming in the late spring through the summer. This area of Missouri receives about 40 inches of precipitation per year (USDA 1982).

4.3 GENERAL GEOLOGY

The geology of Laclede County, Missouri, is characterized as flat lying dolomites with sandstone layers. The uppermost units are in the lower portion of the Ordovician System in the Canadian Series. Below this the rocks are part of the Cambrian System in the Upper Cambrian Series. The youngest unit onsite is the Roubidoux Formation, below this is the Gasconade Formation, then the Eminence Formation, followed by the Potosi formation then the Elvins Group which contains the Derby-Doerun Formation and the Davis Formation (DGLS 1961). The area is subject to karst activity. Karst surface expression is observed within a short distance of the site, onsite this is evident by the irregular bedrock topography. The stratigraphic sequence is shown in Figure 4-1.

The Roubidoux Formation is a dolomitic sandstone. Onsite it ranges from several feet deep to several tens of feet. The sandstone is a well rounded, well sorted sand with cross bedding. The dolomitic portion is fine grained and thinly to thickly bedded (DGLS 1961).

System	Series	Formation	Lithology	Water Bearing Properties
ORDOVICIAN SYSTEM	CANADIAN SERIES	Colluvium	Cherty Clay	Perched water
		Roubidoux	Sandstone, cherty, well rounded well sorted sand.	Good Quality (30-50gpm)
		Upper Gasconade	Dolomite, finely crystalline, cherty	Good Quality 40-50 gpm
		Gasconade	Dolomite, coarsely crystalline, large % of chert	Good Quality many private wells finished in the Gasconade
		Gunter Member	Sandstone, medium grained, quartzose dolomitic	High potential Yields
CAMBRIAN SYSTEM	UPPER CAMBRIAN SERIES	Eminemce	Dolomite, medium to massively bedded, medium to coarse grained, chert nodules upper portion, occasionall large chert nodules (up to 6 feet in diameter)	High potential yield if a fracture can be intersected.
		Potosi	Dolomite, massive, thickly bedded, quartz druse, coarse grained, vugular texture.	High yields of good quality water. Many Municipal Wells in the Potosi.
		Elvins Group	Dolomite and limestone.	Water supply variable

Source: Missouri Geological Survey and Water Resources, 1961 and 1967.

Corel: DTSTRAT.CDR

Project No.	Detroit Tool Manufacturing Site Lebanon, Missouri	General Stratigraphy	Figure No.: 4-1
7760-013	CDM FEDERAL PROGRAMS CORPORATION a subsidiary of Camp Dresser & McKee Inc.		6/94

The Gasconade Formation is a cherty dolomite that seems to be more susceptible to karst dissolution than other units in the area. Can contain high amounts of chert, predominantly in nodule form. The lower boundary of the Gasconade is marked by the Gunter Member. This is a dolomitic sandstone that is medium-grained. In this portion of Missouri the Gunter is more dolomite than it is sandstone. It is generally 20 to 30 feet thick (DGLS 1961).

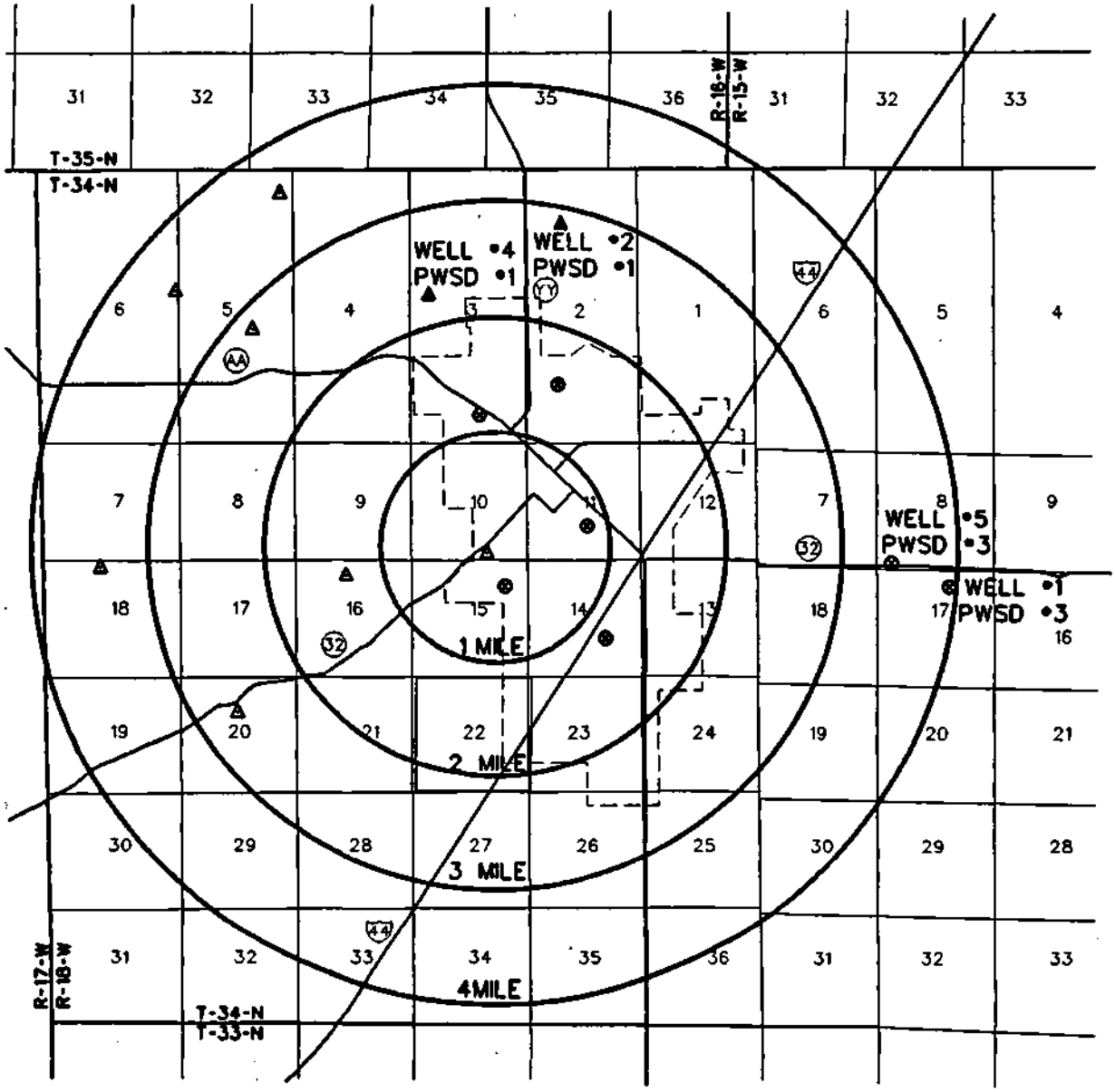
Below the Gasconade lies the Eminence Formation. This unit is a medium to massively bedded medium to coarse-grained dolomite. The Eminence contains small amounts of chert in the upper portion. This formation is the uppermost unit in the Cambrian Series (DGLS 1961).

The Potosi Formation lies below the Eminence, this is a massive, thickly bedded medium to fine-grained dolomite (DGLS 1961). The Potosi contains quartz druse, which is related to chert (DGLS 1961). Vugular texture generally gives the Potosi high porosity and conductivity (DGLS 1967). The high porosity and conductivity makes the Potosi formation very favorable for use as a municipal water supply (DGLS 1967).

4.4 HYDROGEOLOGIC SETTING

Groundwater in the Lebanon area is in an unconfined aquifer. The water is generally high quality with high production rates from bedrock units. Public water wells in and around Lebanon are generally from 1,000 feet to 1,300 feet deep. At this depth the water is drawn from the Potosi Formation, this formation yields high quantities of good quality water. The interconnected vugs allows for water to flow freely throughout the formation (DGLS 1967).

The regional groundwater is at a depth of about 100 feet below the Detroit Tool site. This is in the Roubidoux Formation, many private wells are finished in this formation and the underlying formation, the Gasconade. Wells finished in the Roubidoux generally produce 30 to 50 gpm and wells finished in the Gasconade can produce 40 to 50 gpm and sometimes higher locally (DGLS 1967). Municipal and private wells are shown in Figure 4-2.



MCS FILE: DETTOL03

Project No.: 7760-013	Detroit Tool Lebanon, Missouri CDM FEDERAL PROGRAMS CORPORATION a subsidiary of Camp Dresser & McKee Inc.	4 Mile Radius Map	Figure No.: 4-2 6/94

Site specific groundwater flows to the northwest (Shifrin and Associates 1992). Beneath Detroit Tool there is a perched water zone, at about 40 feet in depth. There are also smaller perched zones that contain small amounts of water at shallower depths. These shallower zones were generally discovered during test pit excavations. Contamination found in the groundwater onsite was found in the perched water zone (Shifrin and Associates 1992).

5.0 PATHWAY ASSESSMENT

5.1 GROUNDWATER PATHWAY

Groundwater within a 4-mile radius of the site is utilized by the City of Lebanon, two public water supply districts, one commercial dairy and several private wells. Groundwater is the only source for drinking water utilized in this area.

The town of Lebanon, Missouri, operates five wells within the city limits, see Figure 2-1 for locations. These wells are distributed throughout the city and are part of a blended system. These wells contribute nearly equal quantities of water. The Lebanon Municipal Water Supply has about 4,200 service connections (Hubbard 1994) that serves 9,450 people (U.S. Census 1990). City wells draw water from a deep bedrock aquifers, wells are approximately 1,200 feet deep (CDM Federal 1994). Aquifers in this area are unconfined.

To the north and west of Lebanon water is supplied by Public Water Supply District No. 3 (PWSD No. 3). This system is also a blended system and draws water from deep bedrock wells. PWSD No. 3 has two wells that are within four miles of the site, these two wells serve an apportioned population of 2,160 persons. These wells are within the three to four mile range of the site (PWSD No. 3 1994).

To the south and east of Lebanon Public Water Supply District No. 1 (PWSD No. 1) serves an apportioned population of 1,484 people. PWSD No. 1 has two wells within the 4-mile radius of the site, these wells are within the two to three mile range (PWSD No. 1 1994).

Five hundred feet west of the Detroit Tool Manufacturing Facility is the Mid-America Dairy. The dairy has one well on its property, the well is 1,151 feet deep (Moore 1994).

Within the 4-mile radius of Detroit Tool there are five private wells (MDNR 1994). Two of these are located in the two to three mile range and three of these area located in the three to four mile range. Based on 1990 Census data these private wells serve 13 persons (U.S. Census 1990).

5.2 SURFACE WATER PATHWAY

Overland drainage from the site generally flows to the northwest into a ditch adjacent to the railroad grade. The flow from this ditch drains into an unnamed intermittent stream which flows north (USGS 1989). There are no surface water intakes located within the area. Residents within a 4-mile radius of the site rely either on private wells or municipal water systems for potable water.

There are no sensitive environs occurring with the 4-mile radius of the site (MDC 1994).

As part of the initial Woodward Clyde Investigation in 1989, surface water was sampled. A grab sample was taken and the analysis showed no contamination. Based on this information there has not been a release to surface water.

5.3 SOIL AND AIR EXPOSURE PATHWAYS

Due to the removal of contaminated soil the soil and air exposure pathways pose minimal threat. In addition to this the majority of the site is vegetated or capped with a parking lot. Portions of the site are also have restricted access through the installation of a chain link fence that encloses the majority of the units onsite.

Onsite there are approximately 300 workers any given day (Smith 1994). The nearest resident is within 200 feet of the site.

Due to the excavation of the wastes potential exposure to contaminants through the soil and air pathways is considered minimal.

6.0 SUMMARY AND CONCLUSIONS

Detroit Tool is a metal fabrication and finishing operation, they started business in their current location in 1956. The facility produced such products as metal filing cabinets and other stamped metal products. Questionable waste disposal practices of painting related wastes were discovered in the summer of 1989 when during the course of selling the company and environmental audit was completed. Woodward Clyde Consultants of St. Louis, Missouri, was onsite for several months, during this time they completed soil borings, groundwater sampling, and surface water sampling. The results of this investigation showed elevated levels of petroleum products, chlorinated solvents, heavy metals, and VOCs.

Corrective measures were undertaken later that same year and are still continuing. The primary focus of the remediation was to clean up the contaminated soil. Nearly 14,000 c.y. of contaminated material were excavated and disposed of. A groundwater monitoring program was initiated and currently quarterly groundwater sampling is continuing. In a work plan submitted in 1992, by Shannon and Wilson, the groundwater sampling is to continue for four successive quarters (eight for TPH and BTEX) from the time the area has reached the cleanup goals for soil. If contaminants are above the guidelines after the required sampling period further action will be taken to characterize and/or remediate the groundwater.

The groundwater in and around Lebanon is heavily utilized as a drinking water source, over 14,000 people rely on groundwater within a 4-mile radius of the site. The aquifer beneath Lebanon is unconfined with some local perched water zones. The regional groundwater is at about 100 feet. Sampling has shown that the perched water zone below Detroit Tool is contaminated with up to 120 ppb of TCE and elevated levels of other solvents.

The only surface water on the Detroit Tool site is along the north border of the site adjacent to the railroad grade. This is an intermittent drainage ditch that holds small amounts of water. Sampling during the 1989, WCC investigation showed no contamination of surface water. There are no known sensitive environments or surface water intakes along any of the streams 15 miles downgradient of the site.

Remediation efforts have removed contaminated soils. This coupled with the fact that part of the site access is restricted minimizes the concern of direct contact with the wastes on the ground or in the air.

7.0 REFERENCES

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USEPA. 1989. Potential Hazardous Waste Site Identification Form for Detroit Tool Manufacturing Facility.

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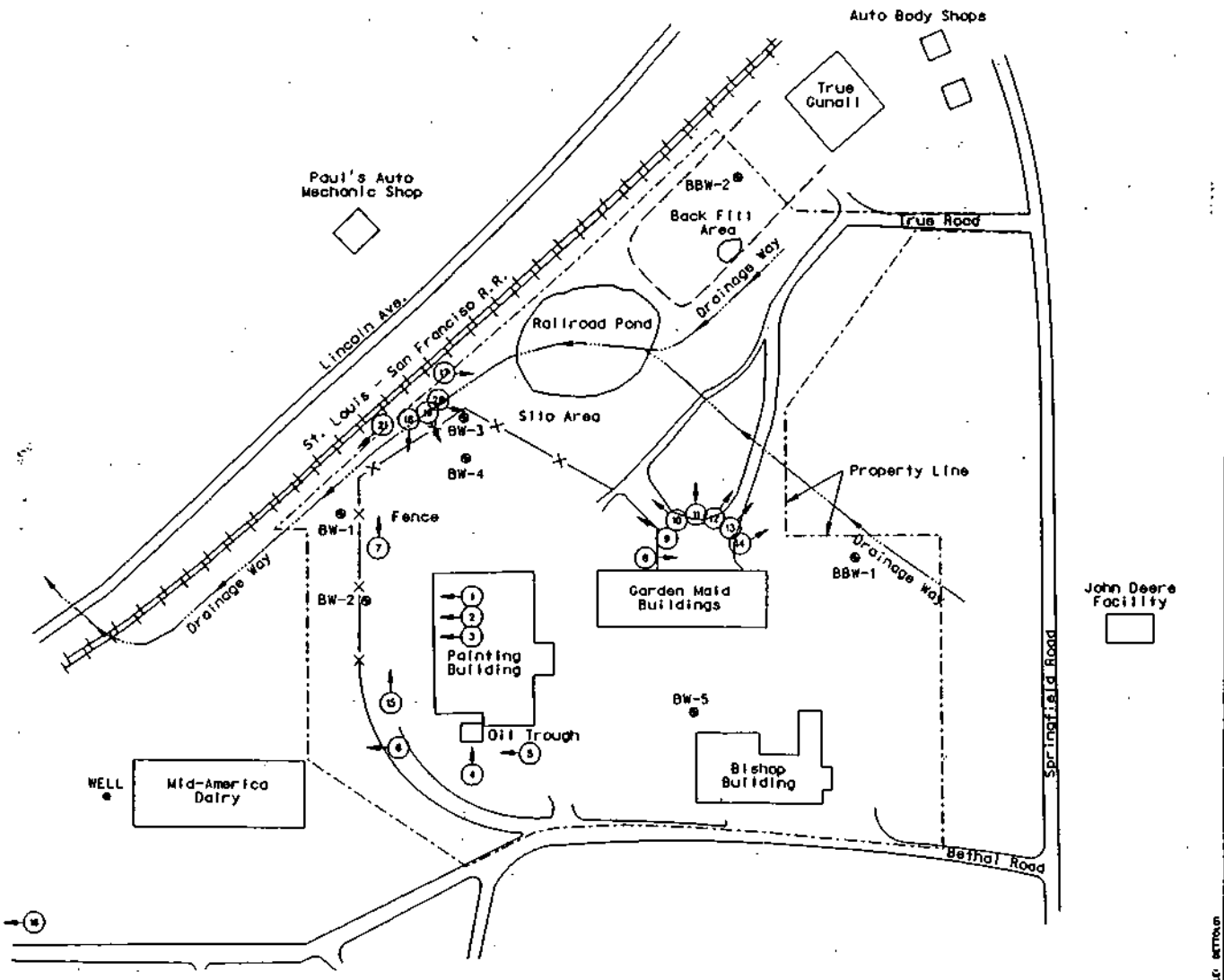
APPENDIX A

PHOTOGRAPHIC RECORD



Legend:

- Boring Location with Monitoring Well
- Photo Location with direction

N

240 0 240 480

SCALE FEET

Site Map

Detroit Tool
Lebanon, Missouri

Project No.: 7780-013

Figure No.: 1

CDM FEDERAL PROGRAMS CORPORATION

5/94

Photographic Record

Site Name: **Detroit Tool**

Site Location: **Lebanon, Missouri**

Project Reference No.: **7760-013-79ZZ**

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

No. 1
Description:

Paint pots in the solvent painting system.

Photographer: Laura Splichal

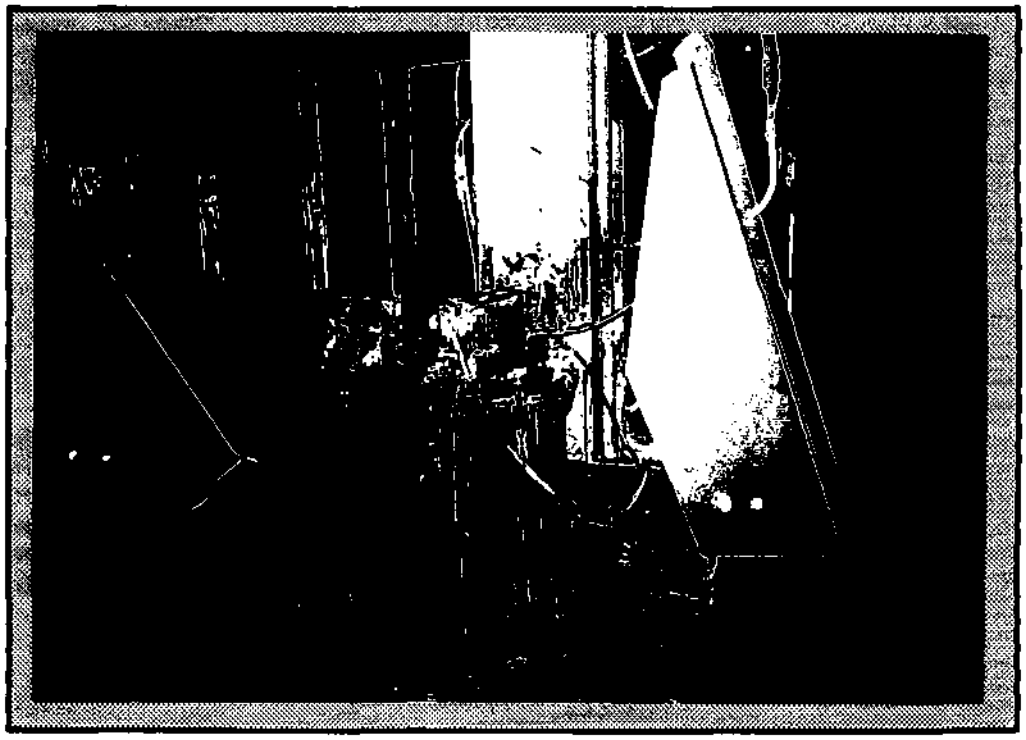
Date: 3/3/94
Time: 2:45 p.m.
Direction: West

No. 2
Description:

Solvent painting facility, paint pots in foreground.

Photographer: Laura Splichal

Date: 3/3/94
Time: 2:45 p.m.
Direction: West



Photographic Record

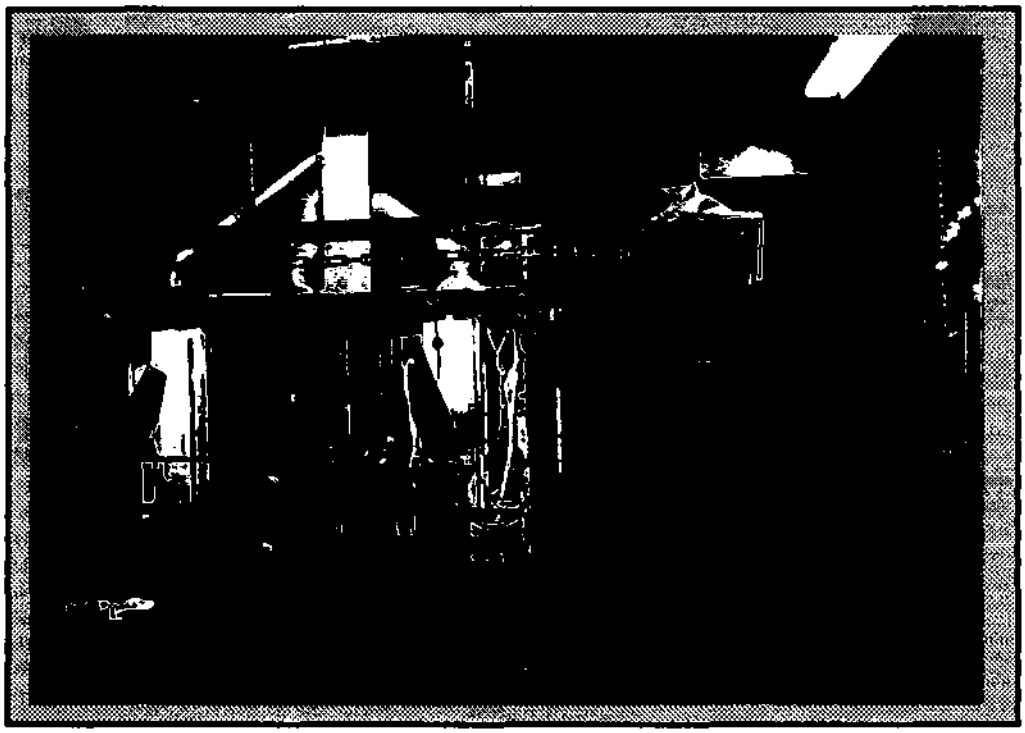
Site Name: Detroit Tool

Site Location: Lebanon, Missouri

Project Reference No.: 7760-013-79ZZ

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

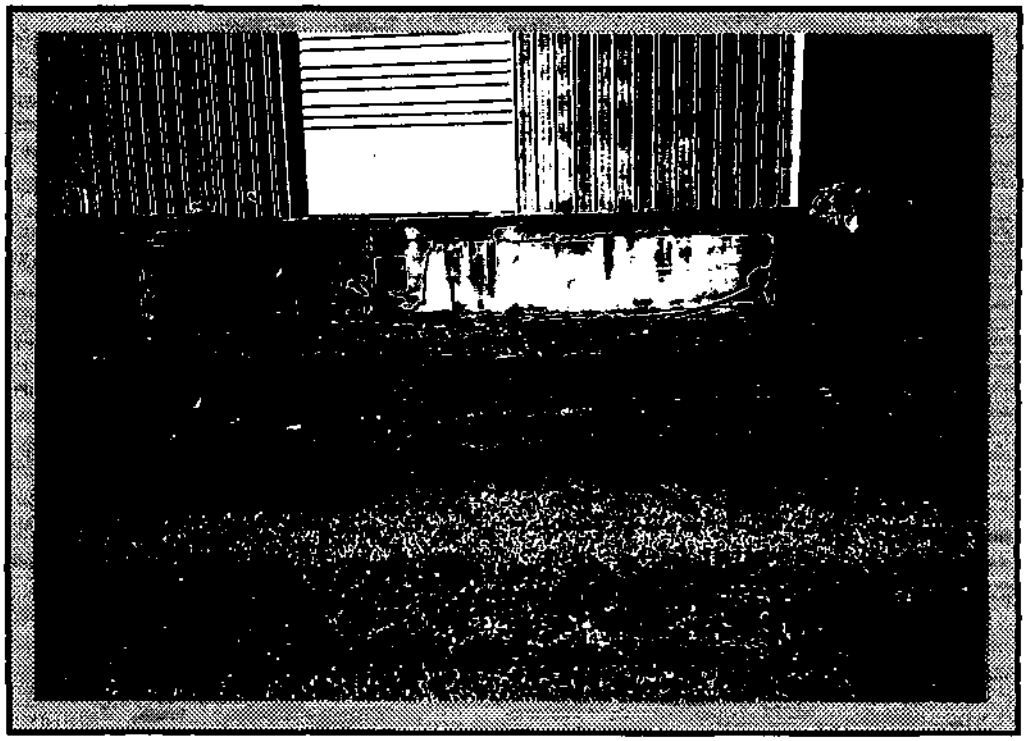
No. 3
Description:
Solvent painting facility, also known as a wet spray operation, idle.
Photographer:
Laura Splichal
Date: 3/3/94
Time: 2:46 p.m.
Direction: West



No. 4
Description:
Former oil trough at the south end of painting building. Fresh soil is remediated area.

Photographer:
Laura Splichal

Date: 3/3/94
Time: 2:50 p.m.
Direction: North



Photographic Record

Site Name: **Detroit Tool**

Site Location: **Lebanon, Missouri**

Project Reference No.: **7760-013-79ZZ**

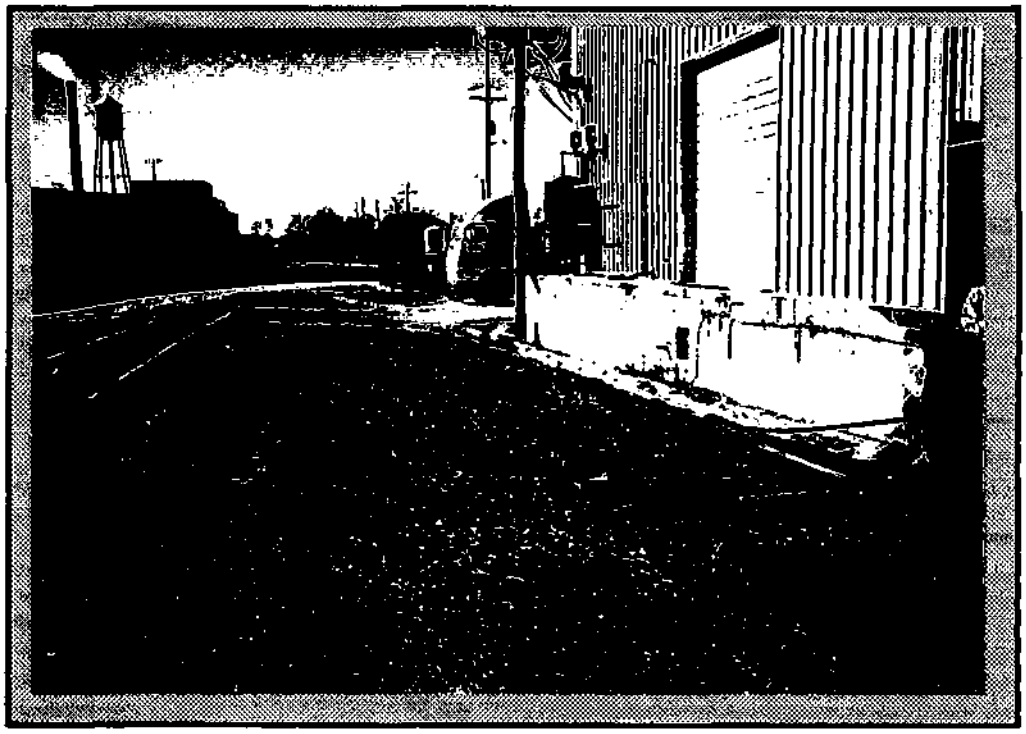
CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

No. 5
Description:

Former oil trough at south end of building. Fresh soil is remediated

Photographer:
Laura Splichal

Date: 3/3/94
Time: 2:45 p.m.
Direction: West



No. 7
Description:

Former drum storage area in foreground, silo area in

Photographer:
Laura Splichal

Date: 3/3/94
Time: 3:00 p.m.
Direction: Northwest

Photographic Record

Site Name: Detroit Tool

Site Location: Lebanon, Missouri

Project Reference No.: 7760-013-79ZZ

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

No. 6
Description:
Downgradient of former oil trough.

Photographer:
Laura Splichal

Date: 3/3/94
Time: 2:53 p.m.
Direction: Northwest

Photographic Record

Site Name: Detroit Tool
Site Location: Lebanon, Missouri
Project Reference No.: 7760-013-79ZZ

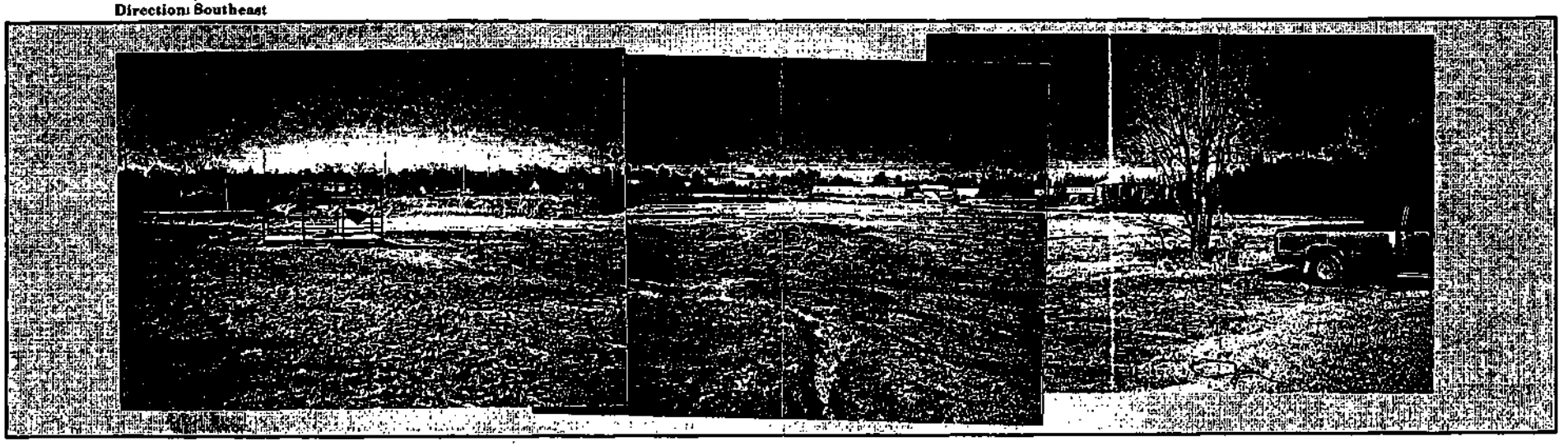
CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

No. 9, 11, 13
Description:

Panoramic view of Former Railroad pond, northern backfill area, Decon facility, silo area and businesses and residences in background. Monitoring wells visible behind Decon facility.

Photographer:
Laura Splichal

Date: 5/3/94
Time: 3:34 p.m.
Direction: Southeast



Photographic Record

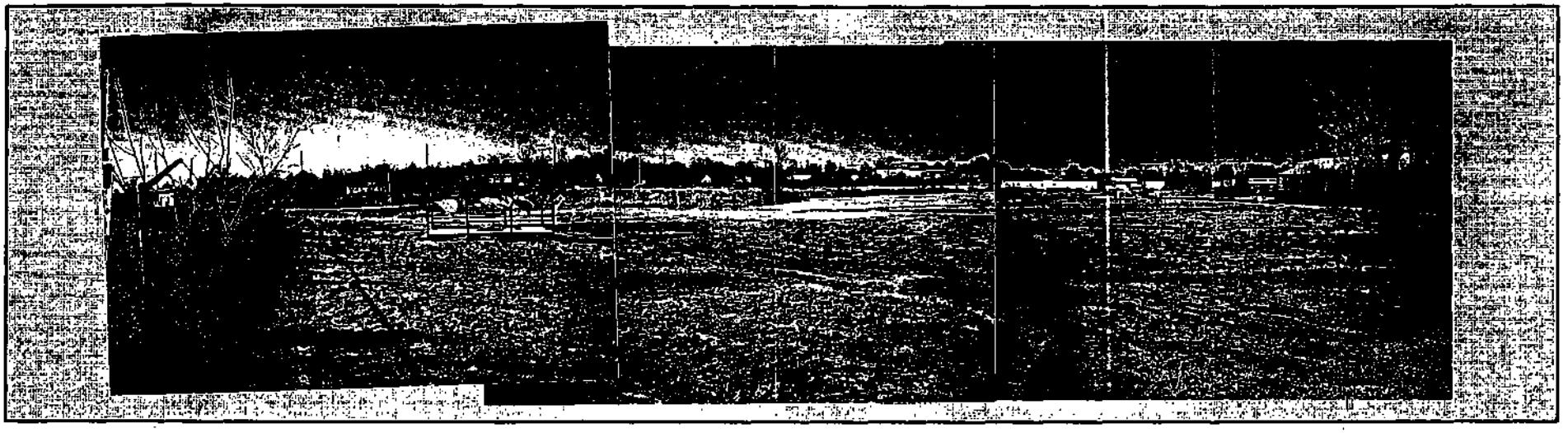
Site Name: Detroit Tool
Site Location: Lebanon, Missouri
Project Reference No.: 7760-013-79ZZ

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc

No. 10, 12, 14
Description:
Panoramic view of Former Railroad pond, northern backfill area, Decon facility, silo area. Several monitoring wells visible behind Decon facility.

Photographer:
Laura Splichal

Date: 3/3/94
Time: 3:15 p.m.
Direction: East to North to West



Photographic Record

Site Name: **Detroit Tool**

Site Location: **Lebanon, Missouri**
Project Reference No.: **7760-013-79ZZ**

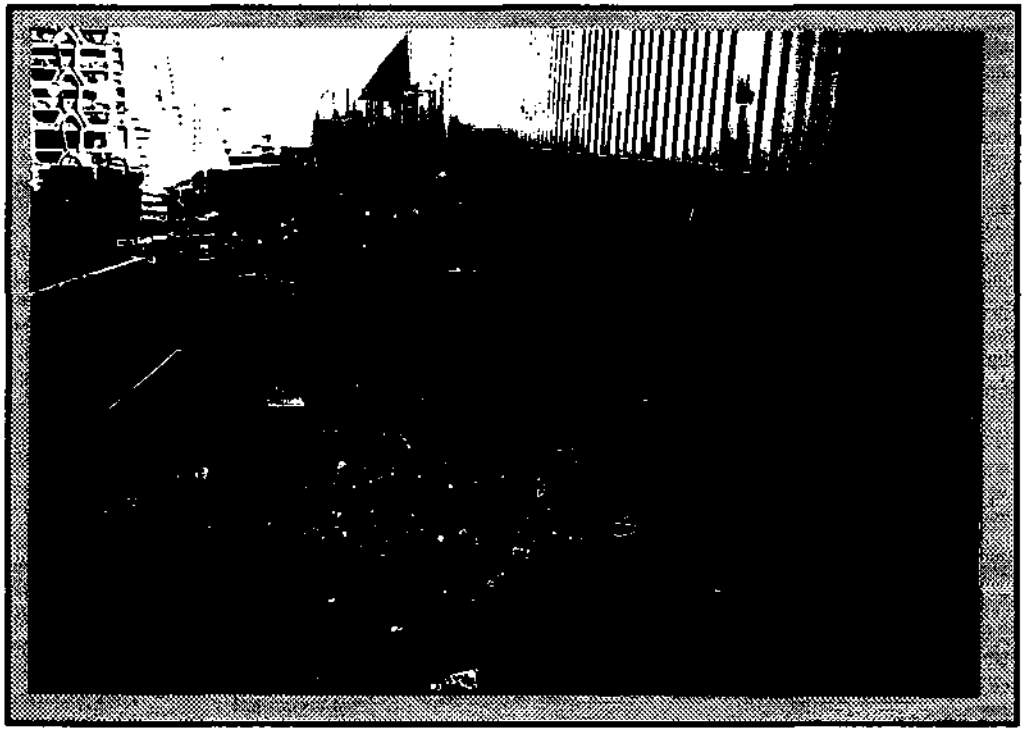
CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

No. 8
Description:

Former die storage area. Clean gravel is remediated area. Dark liquid in foreground is water.

Photographer:
Laura Splichal

Date: 3/3/94
Time: 2:45 p.m.
Direction: West

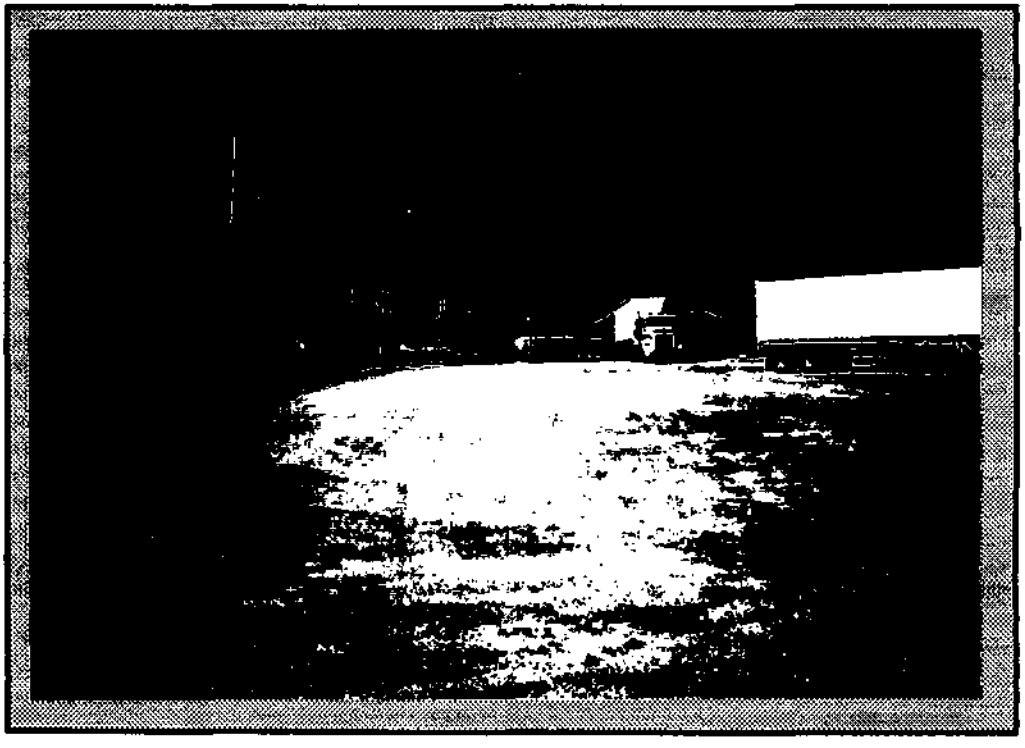


No. 15
Description:

Former lagoon area. Area has been excavated.

Photographer:
Laura Splichal

Date: 3/3/94
Time: 3:22 p.m.
Direction: North



Photographic Record

Site Name: **Detroit Tool**

Site Location: **Lebanon, Missouri**

Project Reference No.: **7760-013-79ZZ**

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

No. 16
Description:

MFA Building west of site.

Photographer:
Laura Splichal

Date: 3/3/94
Time: 2:45 p.m.
Direction: West

No. 17
Description:

Surface water ponded in small intermittant stream. Silo area visible in background along with purge drums.

Photographer:
Laura Splichal

Date: 3/3/94
Time: 3:32 p.m.
Direction: East

Photographic Record

Site Name: **Detroit Tool**
Site Location: **Lebanon, Missouri**
Project Reference No.: | **7760-013-79ZZ**

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

No. 18,19,20
Description:
Panoramic showing silo area, drum storage area and facility. Note monitoring well just to the left of the cedar tree.

Photographer:
Laura Splichal

Date:3/3/94
Time: 3:34 p.m.
Direction: Southeast

Photographic Record

Site Name: Detroit Tool

Site Location: Lebanon, Missouri

Project Reference No.: 7760-013-79ZZ

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

No. 21
Description:
MFA Facility viewed from north of silo area.
Photographer:
Laura Splichal
Date: 3/3/94
Time: 3:35 p.m.
Direction: West

No.
Description:

End of Photo Record

Photographer:

Date:
Time:
Direction:

APPENDIX B

EPA PRELIMINARY ASSESSMENT FORM

EPA Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: MO | CERCLIS Number: MOD981120587

CERCLIS Discovery Date: 8-8-89

1. General Site Information

Name: Detroit Tool	Street Address: 100 Carr Rd				
City: Lebanon	State: MO	Zip Code: 65536	County: Laclede	Co. Code: 105	Cong. Dist: 4
Latitude: 37° 40' 15.0" Longitude: 92° 42' 16.0"	Approximate Area of Site: 35 Acres ____ Square Ft		Status of Site: ☒ Active ☐ Not Specified ☐ Inactive ☐ NA (GW plume, etc.)		

2. Owner/Operator Information

Owner: Harbour Industries	Operator: Detroit Tool
Street Address: 7701 Forsyth Boulevard	Street Address: 100 Carr Rd
City: St. Louis	City: Lebanon
State: MO Zip Code: 63105 Telephone: (314) 727-5500	State: MO Zip Code: 65536 Telephone: (417) 532-2141

Type of Ownership:
☒ Private ☐ Federal Agency Name____ ☐ State ☐ Indian ☐ County ☐ Municipal ☐ Not Specified ☐ Other____

How Initially Identified:
☐ Citizen Complaint ☐ PA Petition ☐ State/Local Program ☒ RCRA/CERCLA Notification ☐ Federal Program ☐ Incidental ☐ Not Specified ☐ Other____

3. Site Evaluator Information

Name of Evaluator: David Everson	Agency/Organization: COM Federal	Date Prepared: June 28, 1994
Street Address: 8215 Melrose Dr	City: Lenexa	State: KS
Name of EPA or State Agency Contact: Anne Olberding	Street Address: 726 Minnesota Ave.	
City: Kansas City	State: KS	Telephone: (913) 551 7718

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: ☐ Yes ☐ No Date: ____	CERCLIS Recommendation: ☐ Higher Priority SI ☐ Lower Priority SI ☐ NFRAP ☐ RCRA ☐ Other____ Date: ____	Signature: Name (typed): Position:

EPA **Potential Hazardous Waste Site**
Preliminary Assessment Form - Page 2 of 4

CERCLIS Number: MOD981120587

5. General Site Characteristics

Predominant Land Uses Within 1 Mile of Site (check all that apply):
- [X] Industrial
- [X] Commercial
- [X] Residential
- [X] Forest/Fields
- [ ] Agriculture
- [ ] Mining
- [ ] DOD
- [ ] DOE
- [ ] DOI
- [ ] Other Federal Facility _____
- [ ] Other _____

Site Setting:
- [ ] Urban
- [X] Suburban
- [ ] Rural

Years of Operation:
Beginning Year 1956
Ending Year Active
- [ ] Unknown

Type of Site Operations (check all that apply):
- [X] Manufacturing (must check subcategory)
  - [ ] Lumber and Wood Products
  - [ ] Inorganic Chemicals
  - [ ] Plastic and/or Rubber Products
  - [X] Paints, Varnishes
  - [ ] Industrial Organic Chemicals
  - [ ] Agricultural Chemicals (e.g., pesticides, fertilizers)
  - [ ] Miscellaneous Chemical Products (e.g., adhesives, explosives, ink)
  - [ ] Primary Metals
  - [X] Metal Coating, Plating, Engraving
  - [X] Metal Forging, Stamping
  - [ ] Fabricated Structural Metal Products
  - [ ] Electronic Equipment
  - [ ] Other Manufacturing
- [ ] Mining
  - [ ] Metals
  - [ ] Coal
  - [ ] Oil and Gas
  - [ ] Non-metallic Minerals
- [ ] Retail
- [ ] Recycling
- [ ] Junk/Salvage Yard
- [ ] Municipal Landfill
- [ ] Other Landfill
- [ ] DOD
- [ ] DOE
- [ ] DOI
- [ ] Other Federal Facility _____
- [ ] RCRA
  - [ ] Treatment, Storage, or Disposal
  - [ ] Large Quantity Generator
  - [ ] Small Quantity Generator
  - [ ] Subtitle D
    - [ ] Municipal
    - [ ] Industrial
  - [ ] "Converter"
  - [ ] "Protective Filer"
  - [ ] "Non- or Late Filer"
- [ ] Not Specified
- [ ] Other _____

Waste Generated:
- [X] Onsite
- [ ] Offsite
- [ ] Onsite and Offsite

Waste Deposition Authorized By:
- [ ] Present Owner
- [X] Former Owner
- [ ] Present & Former Owner
- [ ] Unauthorized
- [ ] Unknown

Waste Accessible to the Public:
- [ ] Yes
- [X] No

Distance to Nearest Dwelling, School, or Workplace:
10 Feet

6. Waste Characteristics Information

Source Type: (check all that apply)	Source Waste Quantity: (include units)	Tier*:
[ ] Landfill		
[ ] Surface Impoundment		
[ ] Drums		
[ ] Tanks and Non-Drum Containers		
[ ] Chemical Waste Pile		
[ ] Scrap Metal or Junk Pile		
[ ] Tailings Pile		
[ ] Trash Pile (open dump)		
[ ] Land Treatment		
[X] Contaminated Ground Water Plume (unidentified source)		
[ ] Contaminated Surface Water/Sediment (unidentified source)		
[ ] Contaminated Soil		
[ ] Other _____		
[ ] No Sources		

* C = Constituent, W = Wastestream, V = Volume, A = Area

General Types of Waste (check all that apply)
- [X] Metals
- [X] Organics
- [ ] Inorganics
- [X] Solvents
- [X] Paints/Pigments
- [X] Pesticides/Herbicides
- [ ] Acids/Bases
- [X] Oily Waste
- [ ] Municipal Waste
- [ ] Mining Waste
- [ ] Laboratory/Hospital Waste
- [ ] Explosives
- [ ] Radioactive Waste
- [ ] Other _____
- [ ] Construction/Demolition Waste

Physical State of Waste as Deposited (check all that apply):
- [X] Solid
- [X] Sludge
- [ ] Powder
- [X] Liquid
- [ ] Gas

EPA **Potential Hazardous Waste Site**
Preliminary Assessment Form - Page 3 of 4

CERCLIS Number:

7. Ground Water Pathway

Is Ground Water Used for Drinking Water Within 4 Miles:
- [x] Yes
- [ ] No

Type of Drinking Water Wells Within 4 Miles (check all that apply):
- [x] Municipal
- [x] Private
- [ ] None

Is There a Suspected Release to Ground Water:
- [x] Yes
- [ ] No

Have Primary Target Drinking Water Wells Been Identified:
- [ ] Yes
- [x] No

If Yes, Enter Primary Target Population:

_____ People

Depth to Shallowest Aquifer:

30 Feet

Karst Terrain/Aquifer Present:
- [x] Yes
- [ ] No

Nearest Designated Wellhead Protection Area:
- [ ] Underlies Site
- [ ] >0 - 4 Miles
- [x] None Within 4 Miles

List Secondary Target Population Served by Ground Water Withdrawn From:

0 - ¼ Mile	115
> ¼ - ½ Mile	1890
> ½ - 1 Mile	1890
>1 - 2 Miles	5670
>2 - 3 Miles	1551
>3 - 4 Miles	2258
Total Within 4 Miles	13374

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):
- [x] Stream
- [ ] River
- [ ] Pond
- [ ] Lake
- [ ] Bay
- [ ] Ocean
- [ ] Other _____

Shortest Overland Distance From Any Source to Surface Water:

100 Feet

_____ Miles

Is There a Suspected Release to Surface Water:
- [ ] Yes
- [x] No

Site is Located in:
- [ ] Annual - 10 yr Floodplain
- [ ] >10 yr - 100 yr Floodplain
- [ ] >100 yr - 500 yr Floodplain
- [x] >500 yr Floodplain

Drinking Water Intakes Located Along the Surface Water Migration Path:
- [ ] Yes
- [x] No

Have Primary Target Drinking Water Intakes Been Identified:
- [ ] Yes
- [x] No

If Yes, Enter Population Served by Primary Target Intakes:

_____ People

List All Secondary Target Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served

Total within 15 Miles: None

Fisheries Located Along the Surface Water Migration Path:
- [ ] Yes
- [x] No

Have Primary Target Fisheries Been Identified:
- [ ] Yes
- [x] No

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)
None	

EPA **Potential Hazardous Waste Site**
Preliminary Assessment Form - Page 4 of 4

CERCLIS Number:

8. Surface Water Pathway (continued)

Wetlands Located Along the Surface Water Migration Path:
- ☐ Yes
- ☒ No

Have Primary Target Wetlands Been Identified:
- ☐ Yes
- ☒ No

List Secondary Target Wetlands:

Water Body	Flow (cfs)	Frontage Miles

Other Sensitive Environments Located Along the Surface Water Migration Path:
- ☐ Yes
- ☒ No

Have Primary Target Sensitive Environments Been Identified:
- ☐ Yes
- ☒ No

List Secondary Target Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type

9. Soil Exposure Pathway

Are People Occupying Residences or Attending School or Daycare on or Within 200 Feet of Areas of Known or Suspected Contamination:
- ☒ Yes
- ☐ No

If Yes, Enter Total Resident Population:

5 People

Number of Workers Onsite:
- ☐ None
- ☐ 1 - 100
- ☒ 101 - 1,000
- ☐ >1,000

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:
- ☐ Yes
- ☒ No

If Yes, List Each Terrestrial Sensitive Environment:

10. Air Pathway

Is There a Suspected Release to Air:
- ☐ Yes
- ☒ No

Enter Total Population on or Within:

Onsite	300
0 - ¼ Mile	203
> ¼ - ½ Mile	534
> ½ - 1 Mile	2216
> 1 - 2 Miles	3949
> 2 - 3 Miles	1245
> 3 - 4 Miles	1032
Total Within 4 Miles	9479

Wetlands Located Within 4 Miles of the Site:
- ☐ Yes
- ☒ No

Other Sensitive Environments Located Within 4 Miles of the Site:
- ☐ Yes
- ☒ No

List All Sensitive Environments Within ½ Mile of the Site:

Distance	Sensitive Environment Type/Wetlands Area (acres)
Onsite	
0 - ¼ Mile	
> ¼ - ½ Mile	